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PATENT

PATENT APPLICATION

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APPLICANT

FEDERAL MOGUL SYSTEMS PROTECTION GROUP

TITLE

A method of fabricating a compartmented textile sheath
and a compartmented textile sheath made by the method

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The present invention relates to a method of fabricating a compartmented textile sheath.

It also relates to a compartmented textile sheath made by a method according to the invention.

5 Using protective sheaths on cables or bundles of electrical or optical cables to protect the cables from external attack of various kinds is known in the art.

Closed textile sheaths for this purpose, which are closed by sewing together the edges of a textile strip folded in two in the longitudinal direction, are known in
10 the art.

Compartmented sheaths are sometimes used, i.e. sheaths having at least two pockets extending in the longitudinal direction of the sheath, each pocket or
15 compartment being adapted to house one cable of a bundle of cables.

This type of sheath has the advantage of retaining the cable in a substantially rectilinear direction inside the sheath, so that cables already introduced into the
20 sheath do not impede the introduction of successive cables. In particular, if the cables are unwound from a spool, they generally remain kinked to some degree such that introducing one cable into a sheath can be impeded by a cable previously fitted.

25 For example, the document US 6 260 371 discloses a closed sheath with a plurality of compartments made from a plurality of textile strips sewn edge to edge in the longitudinal direction of the sheath. In particular, the textile strips can have different widths in order to form
30 open compartments, a wider strip forming an enlargement above a narrower strip.

An object of the present invention is to propose a greatly simplified method of fabricating a sheath of the above kind.

35 To this end, the method of fabricating a closed

textile sheath with a plurality of longitudinal compartments includes a step of weaving a flat strip in which tubular portions and bound portions alternate across the width of said strip.

5 Thus it is possible to obtain in a single weaving operation a strip in which tubular portions and bound portions alternate. In this way a plurality of adjacent longitudinal compartments is obtained in the same fabric.

10 In one particularly practical embodiment of the invention, the tubular portions are woven using a double-sided weaving technique.

On the other hand, the bound portions are woven using a double weft filament.

15 According to one preferred feature of the invention, the fabrication method includes, in parallel with the weaving step, a step of inserting a material forming a cable puller inside said tubular portions.

20 Using the above method, a closed sheath with a plurality of compartments can be obtained, each compartment being provided with a cable puller to facilitate entry of the cable into that compartment.

25 The present invention also provides a textile sheath fabricated by a fabrication method according to the invention and comprising at least two tubular portions separate by bound portions.

30 A compartmented textile sheath can thus be obtained directly from the output of a loom. It takes the form of a compartmented flat strip so that bundles of cables can be disposed in a common plane and easily stacked in a conduit.

This type of sheath is particularly suitable for electrical cables used in the construction industry.

35 Other features and advantages of the invention will become apparent in the course of the following description.

In the accompanying drawings, which are provided by way of non-limiting example:

- figure 1 is a perspective view of a compartmented sheath conforming to a first embodiment of the invention;

5 - figure 2 is a perspective view of a compartmented sheath conforming to a second embodiment of the invention; and

- figure 3 is a diagram showing a weaving method according to the invention.

10 A textile sheath conforming to a first embodiment of the invention is described first with reference to figure 1.

The textile sheath 10 is a compartmented closed sheath.

15 By way of non-limiting example, this sheath here comprises three compartments 11, 12, 13.

This kind of sheath is adapted to accommodate a cable of a bundle of cables in each compartment, for example, and can be used in the construction industry in particular.

20 Each compartment 11, 12, 13 is formed of a tubular portion extending in the longitudinal direction of the sheath.

25 The textile sheath is woven. Filaments of different kinds can be used to weave it, depending on the intended applications of the sheath. In particular, the sheath can be made from thermoplastics material, for example polypropylene, monofilaments.

30 In a preferred embodiment of the invention, shown in figure 2, the textile sheath further comprises a material forming a cable puller 16 in each tubular portion 11, 12, 13.

35 The use of a cable puller 16 facilitates introducing the cable into each compartment when it is a question of introducing long lengths of cable, sometimes

as much as one or more kilometers of cable, into each compartment of the sheath.

Each woven tubular portion preferably comprises at least one warp filament of predetermined color. Thus a different color warp filament is provided in each compartment. It uniquely identifies each tubular portion 11, 12, 13 of the sheath 10.

The warp filament of predetermined color, also known as a tracer, indicates which cable puller to use when the cable is attached from the other end of the sheath, at a distance from the free end of the cable puller.

The method of fabricating the above kind of sheath is described next with reference to figure 3.

The textile sheath with a plurality of longitudinal compartments 11, 12, 13 is woven. The weaving method includes a step of weaving a flat strip across the width of which tubular portions 11, 12, 13 alternate with bound portions 14, 15.

Thus a closed and compartmented sheath 10 is obtained in a single weaving operation.

As shown clearly in figure 3, the tubular portions 11, 12, 13 are woven by a double-sided weaving technique. The bound portions 14, 15 are woven with a double weft filament 17, 18 crossing over around warp filaments 19.

The interleaving of the weft filaments 17, 18 used to produce each face of the tubular portions 11, 12, 13 binds the two faces together at the locations of the bound portions 14, 15.

Moreover, a step of inserting a material forming a cable puller 16 is executed in parallel with the weaving step, whereby a cable puller 16 is inserted into each tubular portion 11, 12, 13.

This cable puller insertion step is carried out as the weaving step proceeds, with the result that a sheath

with the cable pullers in place can be obtained in a single operation.

On leaving the loom, the sheath takes the form of a flat woven strip in which tubular portions 11, 12, 13 alternate with bound portions 14, 15.

Although the accompanying drawings show open tubular portions, to assist an understanding of the invention, these portions are in reality closed on leaving the loom, so that the strip is substantially flat. It can therefore be rolled up to facilitate transport and handling.

The textile strip can be cut to the length required for each insertion of a bundle of cables.

If it is required to identify each compartment 11, 12, 13 uniquely, one of the warp filaments 19 is replaced during the weaving process by a colored warp filament 19', 19", using a different color for each compartment 11, 12, 13.

Of course, the embodiments described above can be modified in many ways without departing from the scope of the invention.

In particular, the number of compartments produced across the width of the sheath can vary.

Also, the width of the bound portions 14, 15 relative to the width of the compartments 11, 12, 13 can vary.

For example, in the bound portion 13 shown in figure 3, three warp filaments 19 are provided, and that number can of course be increased or reduced.

The compartments 11, 12, 13 can have identical widths or different widths depending on the dimensions of the cables to be inserted into each compartment.

CLAIMS

1. A method of fabricating a closed textile sheath with a plurality of longitudinal compartments (11, 12, 13), characterized in that it includes a step of weaving
5 a flat strip in which tubular portions (11, 12, 13) and bound portions (14, 15) alternate across the width of said sheath.
2. A method according to claim 1 of fabricating a sheath, characterized in that the tubular portions (11,
10 12, 13) are woven using a double-sided weaving technique.
3. A method according to claim 1 or claim 2 of fabricating a sheath, characterized in that the bound portions (14, 15) are woven using a double weft filament (17, 18).
- 15 4. A method according to any of claims 1 to 3 of fabricating a sheath, characterized in that it includes, in parallel with the weaving step, a step of inserting a material forming a cable puller (16) inside said tubular portions (11, 12, 13).
- 20 5. A compartmented closed textile sheath, characterized in that it is fabricated by a fabrication method according to any of claims 1 to 4, said sheath comprising at least two tubular portions (11, 12, 13) separate by a bound portion (14, 15).
- 25 6. A textile sheath according to claim 5, characterized in that it is woven from thermoplastics monofilaments.
7. A textile sheath according to either claim 5 or claim 6, characterized in that a cable puller (16) is
30 inserted in each tubular portion (11, 12, 13).
8. A textile sheath according to any of claims 5 to 7, characterized in that each tubular portion (11, 12, 13) of the sheath (10) includes a warp filament (19', 19") of predetermined color adapted to identify uniquely
35 said tubular portion (11, 12, 13).

TITLE OF THE INVENTION

A method of fabricating a compartmented textile sheath
and a compartmented textile sheath made by the method

TEXT OF THE ABSTRACT

A method of fabricating a closed textile sheath (10) with a plurality of longitudinal compartments (11, 12, 13) includes a step of weaving a flat strip in which tubular portions (11, 12, 13) and bound portions (14, 15) alternate across the width of said sheath.

A compartmented closed textile sheath made by a method of the above kind can be used to protect a bundle of cables.

(see figure 1)

Fig. 1

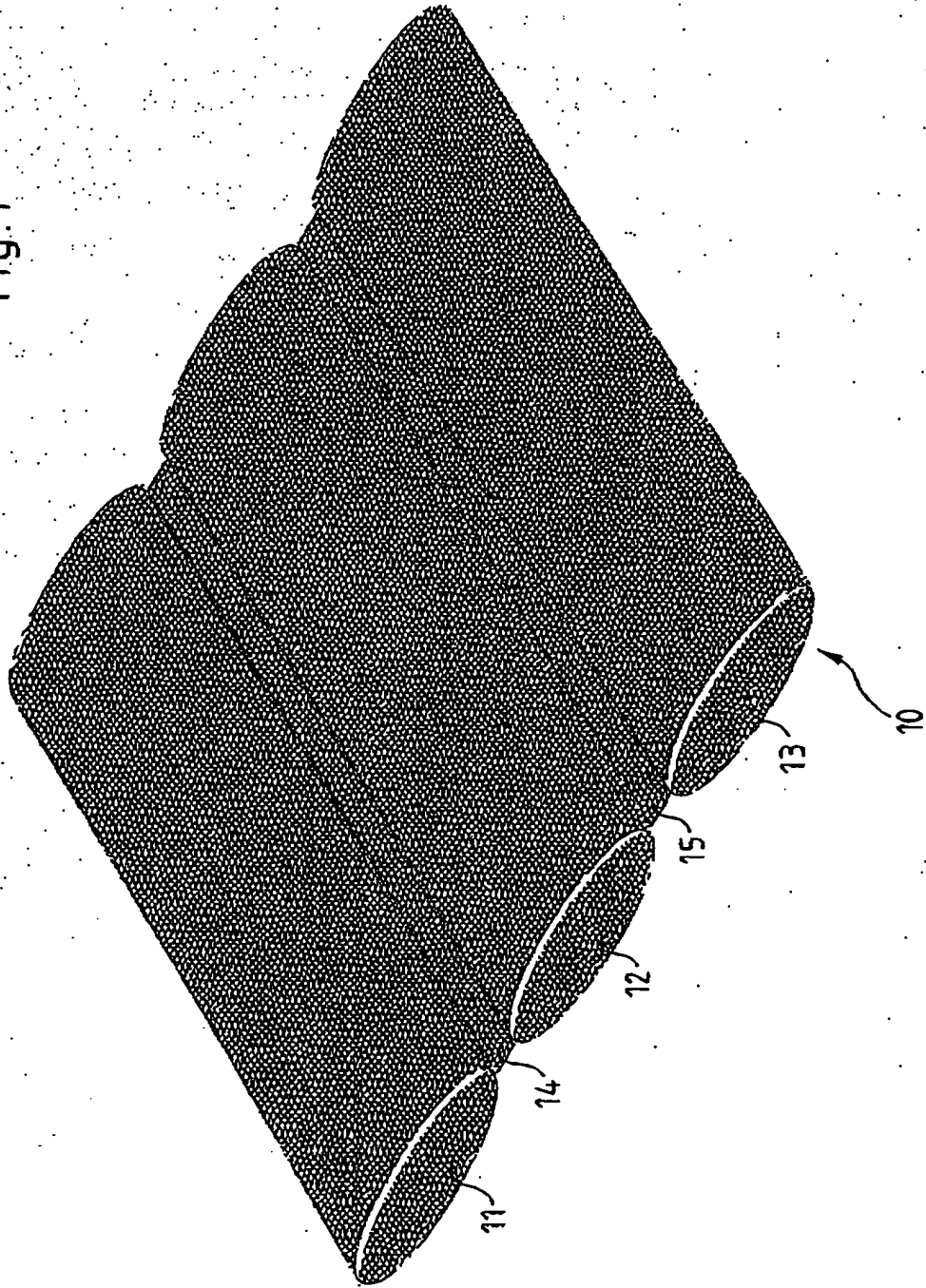


Fig. 2

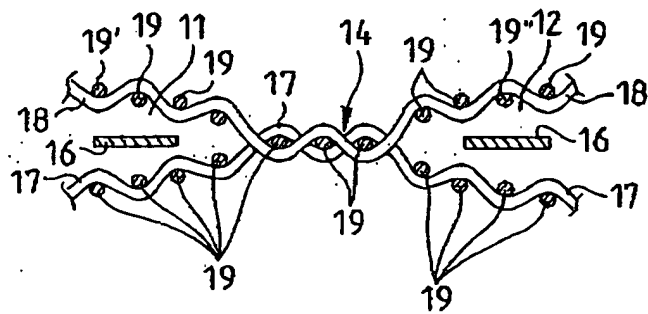
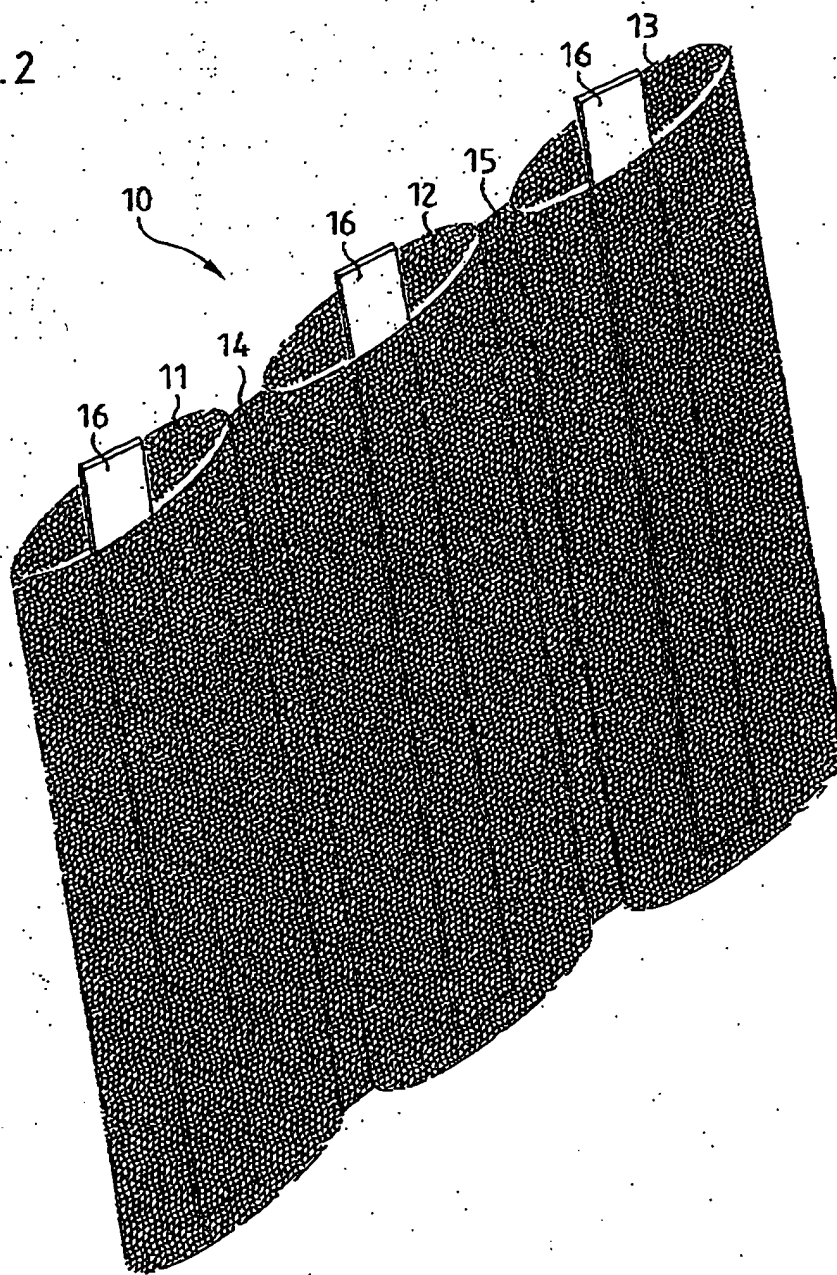


Fig. 3